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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,136	04/13/2004	Lucas M. O'Gary	59095US002	4530
32692	7590	11/14/2006	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY				MARCHESCI, MICHAEL A
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ST. PAUL, MN 55133-3427				
				ART UNIT
				PAPER NUMBER
				1755

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/823,136	O'GARY ET AL.
	Examiner Michael A. Marcheschi	Art Unit 1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 August 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-25,28 and 29 is/are rejected.
- 7) Claim(s) 26 and 27 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 13 April 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/28/06 has been entered.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claim 15 defines the height as “at least 0.5 mm” but the specification fails to provide proper antecedent basis for the “at least 0.5 mm”. The specification defines the height as “about 0.5 mm **to about 5 mm (page 7, lines 18-19)**”, thus a discrepancy is apparent between the claim and the disclosure (disclosure defines an upper limit not claimed). In view of this, the examiner is unclear as to which is correct. Since claim 15 is an original claim, as filed with the specification, it is suggested that the limitation of claim 15 “at least 0.5 mm” be literally defined in the specification.

Claims 26 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base

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claim and any intervening claims. The prior art of records fails to teach or suggest these features.

Claims 1-18, 21-24 and 28-29 are rejected under 35 U.S.C. 103(a) as obvious over Braun et al. (343) in view of Lux.

Braun et al. teaches in the abstract, figure 12 and column 9, lines 35-50, a nonwoven article comprising a nonwoven substrate having first and second surfaces, wherein the first and second surfaces defines a plurality of peaks and valleys (corrugated) having a height as defined. Abrasive particles can be attached to the fibers of the nonwoven web (column 9, lines 35-39). Figure 12 shows that the web can be a composite of 2 or more corrugated layers. A second substrate is attached to the nonwoven substrate, the second substrate being a fabric or other porous sheet like materials. Although the reference defines face masks and thermal insulations, these are only specific aspects of the invention of the reference (see column 3, line 50 and column 4, line 4). However, column 3, lines 39-49 and the claims define the broadest aspect of the reference and this is only defined as a composite structure and is not limited to face masks and thermal insulations.

Lux teaches in column 4, line 55-column 5, line 20, column 6, lines 2-5, column 8, lines 55-57 and column 10, lines 20-25 that nonwovens are known for abrasive applications and also teaches various thickness known for nonwovens, as well as abrasive sizes. The reference also defines that abrasive coatings on nonwoven webs are conventional in order to impart the desired abrasive character to the nonwoven article. The reference further defines that the use of a make coat/size coat is a conventional way to apply an abrasive coating.

The primary teaches a similar structure as defined in instant claim 1, with the exception of the abrasive coating (abrasive/binder mixture). This reference, however, teaches that abrasive particles can be attached to the fibers of the nonwoven web, thus implying that the surface of the nonwoven web has an abrasive character. Although this reference does not specifically teach the application of an abrasive/binder mixture to coat the nonwoven material, it is the examiners position that one skilled in the art would have found the application of an abrasive/binder mixture to the nonwoven web according to the primary reference obvious motivated by the fact that the primary reference implies that the nonwoven web has an abrasive surface and that the secondary reference teaches a conventional way to make the surface of a nonwoven web have an abrasive character. The examiner acknowledges that the primary reference teaches the application of abrasive particles, only, however, it is the examiners position that the application of abrasive particles by way of using a binder is obvious in order to optimize the bonding of the abrasive particles to the web. In addition, it is the examiners position that “spraying them (the abrasives particles) on the fibers after the NWPM has been collected” suggests that a binder must be applied to the fiber in order to retain said particles on the collected NWPM. With respect to the thickness values of claims 2, 3 and 16, although the thickness is not defined for the broad substrate (the thickness is apparently intended in the definition of a “nonwoven” as set forth on page 5, lines 25+ of the instant specification), the substrate of this reference has a thickness and it is the examiners position that one skilled in the art would have appreciated that the desired thickness would be apparent from conventional thickness values for nonwovens that are made into abrasive articles. In other words, the use of a nonwoven (known for abrasive articles) having a conventional thickness, as clearly shown by Lux, is clearly within the scope of, and/or

would have been appreciated by, the skilled artisan absent evidence of criticality. With respect to the "thickness variation", as can be seen from the figures of primary reference, the thickness is relatively constant. In view of this, claims 1-8, 15-16 and 28 are met. With respect to claim 9, the teaching that particles can be adhered to the fibers, broadly implies the abrasive can be present on the fibers which constitute the first and second side of the web absent evidence to the contrary. In addition, it is the examiners position that if one skilled in the art desired a nonwoven article that can be used on both surfaces (i.e. abrasive action on both surface), one skilled in the art would have known that to accomplish this, both sides need to be coated with an abrasive.

With respect to claims 10 and 12, the primary reference teaches this limitation. With respect to claim 11, the primary reference teaches that a second substrate is attached to the first substrate, the second substrate being a porous sheet like materials and sponge can be broadly considered to be a porous sheet like material. With respect to the abrasive size (claims 13-14), with the combination, being obvious as defined above, one skilled in the art would have found it obvious to use any known conventional abrasive size, such as the size defined by Lux (i.e. the grade defined corresponds to the sizes within the claimed range), as the abrasive particles size according to the primary reference because this abrasive particles size is conventionally known to provide the necessary abrasive character to nonwovens. With respect to claims 17-18, the figures clearly depict these limitations.

With respect to the method claims 21-25, the primary reference, as combined with the secondary reference above, makes the application of an abrasive/binder slurry an obvious way to form the abrasive coating on the nonwoven according to the primary reference. In other words, Lux teaches conventional ways to apply abrasive particles (primary reference states that abrasive

particles can be adhered to the nonwoven) and it is the examiners position that one skilled in the art would have appreciated and found these conventional application techniques obvious as the way to adhere the particles defined by the primary reference. With respect to claim 29, as can be seen from the figures of primary reference, the thickness is relatively constant.

Claim 19 is rejected under 35 U.S.C. 103(a) as obvious over Braun et al. in view of Lux, as applied to claim 1 above and further in view of Nollen et al.

Nollen et al. teaches in column 6, lines 61-68 that enhancement of the physical properties of a non woven article is accomplished by incorporating a reinforcing scrim with said nonwoven.

The use of a reinforcing scrim with the nonwoven according to the primary reference would have been obvious because it is the examiners position that one skilled in the art would have appreciated that physical properties (i.e. tear strength (tensile strength (tensile properties), puncture resistance etc.) of the nonwoven can be can optimized by using a reinforcing scrim, this concept being clearly disclosed by Nollen et al. In view of this, since the optimization of tear strength and puncture resistance are beneficial property in abrasive articles, one skilled in the art would have been motivated to incorporate any known mechanism to optimize said properties.

Claim 20 is rejected under 35 U.S.C. 103(a) as obvious over Braun et al. in view of Lux and Nollen et al. as applied to claim 19 above and further in view of Braunschweig et al.

Braunschweig et al. discloses in the abstract that a conventional way to reinforce a substrate is to incorporate a reinforcing material within the substrate.

Although the scrim might not be defined as being incorporated in the nonwoven, but otherwise attached to the surface (as depicted by Nollen et al.), it is the examiners position that one skilled in the art would have found the incorporation of the scrim obvious by any technique. Since it is clearly known to incorporate a reinforcing material within a substrate, as is clearly shown by Braunschweig et al., one skilled artisan would have appreciated that the scrim according to the Braun et al. in view of Lux and Nollen et al. could be incorporated within the substrate. The examiner acknowledges that Braunschweig et al. is not directed to nonwovens, however, this reference is being applied to show conventional ways of reinforcing substrate (irrespective of what the substrate is). Finally, it is the examiners position that the skilled artisan would have appreciated that one known reinforcing technique for one type of substrate could be applied to other substrates absent evidence to the contrary.

Claim 25 is rejected under 35 U.S.C. 103(a) as obvious over Braun et al. in view of Lux, as applied to claim 24 above and further in view of King.

King et al. teaches known conventional methods to coat a substrate with an abrasive. One method being the use of a slurry coating with a size coating thereon.

As defined above, the method of claim 24 is defined by the Braun et al. in view of Lux. The combination, however, fails to teach the use of a size coating over the slurry coat. It is the examiners position that the use of a size coating over the slurry coating would have been within the scope of the skilled artisan in order to structurally reinforce the bond of abrasive particles. In other words, 2 bonds are better than one, the second bond being a result of the size coating. King

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clearly states that size coats are known to be applied over slurry coating in the formation of coated abrasives.

Applicant's arguments filed 8/28/06 have been fully considered but they are not persuasive.

With respect to the written restriction rejection of claim 15, this is withdraw and replaced with an objection to the specification, as defined above.

Applicants initially argue that Lux does not teach "peaks and valleys". The examiner acknowledges this but is not relying on this reference for the teach that the claimed nonwoven structure (one containing peaks and valleys) is known but rather for the reasons clearly defined in the above rejection. Applicants argument of the Braun et al. reference is in relation to this reference teaching face mask and thermal insulation application (particularly suited as stated by applicants). All of applicants arguments appear to be for the face mask application and the examiner acknowledges that in face mask applications, one would not want an abrasive coating (one of an abrasive/binder mixture) since binder will compromise the filtering effectiveness. However, although the reference defines face masks and thermal insulations, these are only specific aspects of the invention of the reference (see column 3, line 50 and column 4, line 4). Column 3, lines 39-49 and the claims define the broadest aspect of the reference and this is only defined as a composite structure and is not limited to face masks and thermal insulations. In other words, the reference is not only limited to face mask application, as apparently argued. The reference, as a whole, teaches in the broadest sense a corrugated nonwoven composite structure (this can be anything and not limited to a face mask), wherein abrasive particles can be disposed by coating (sprayed) on the fibers after the NWPM is collected. This clearly suggests

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an abrasive coating on the portion of the first surface (surface of fibers) and although a binder is not specifically defined as being used, the examiner has demonstrated why this material would have been *prima facie* obvious for the application of abrasive particles to the surface of the nonwoven material (not specifically limited to face masks as argued).

With respect to the other combination rejections, applicants do not argue the examiners reasons for combining.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

11/06
MM

Michael A Marcheschi
Primary Examiner
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